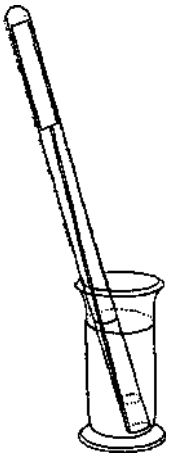
it by pure gold. Then a number of glass tubes were prepared: they were about nine or ten inches in length, five-eighths of an inch in internal diameter, were sealed hermetically at one

Fig. 17.



extremity, and were graduated. Into these tubes was put a mixture of two volumes of hydrogen and one of oxygen, at the water pneumatic trough, and when one of the plates described had been connected with the positive or negative pole of the voltaic battery for a given time, or had been otherwise prepared, it was introduced through the water into the gas within the tube; the whole set aside in a test-glass (fig. 18), and left for a longer or shorter period, that the action might be observed.

Fig. 18.

306. The following result may be given as an illustration of the phenomenon to be investigated. Diluted sulphuric acid, of the specific gravity 1.336, was put into a glass jar, in which was placed also a large platina plate, connected with the negative end of a voltaic battery of forty pairs of four-inch plates, with double coppers, and moderately charged. One of the plates above described (305) was then connected with the positive extremity, and immersed in the same jar of acid for five minutes, after which it was separated from the battery, washed in distilled water and introduced through the water of the pneumatic trough into a tube containing the mixture of oxygen and hydrogen (305). The volume of gases immediately began to lessen, the diminution proceeding more and more rapidly until about three-fourths of the mixture had disappeared. The upper end of the tube became quite warm, the plate itself so

hot that the water boiled as it rose over it; and in less than a minute a cubical inch and a half of the gases were gone, having been combined by the power of the platina, and converted into water.

307. This extraordinary influence acquired by the platina at the positive pole of the pile, is exerted far more readily and